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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/455,932	12/07/1999	TETSUYA OKANO	1341.1035/JD	5754

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EXAMINER

STRANGE, AARON N

ART UNIT PAPER NUMBER

2153

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/455,932	Applicant(s) OKANO ET AL.	
	Examiner Aaron Strange	Art Unit 2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4 and 6-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4 and 6-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/9/2005 have been fully considered but they are not persuasive.
2. With regard to claim 1, and Applicant's assertion that "Jindal teaches away from the present invention because Jindal includes information such as a number of network hops necessary to reach the server" (Page 8, Lines 10-14 of Remarks), the Examiner respectfully disagrees. Applicant goes on to state "In contrast, the present invention computes a distance between the client terminal and the server terminal" (Page 8, Lines 14-16 of Remarks), apparently in support of the above assertion. However, none of the rejected claims even refer to determining or calculating a distance, and certainly do not specify how it would be done.

Furthermore, even if such a limitation appeared in the claims, Jindal merely discloses including the number of hops as information that may be collected, and it is clearly cited as an example "e.g., the number of hops necessary to reach the server" (Col 6, Lines 57-64). Merely providing an example of information types in the specification cannot reasonably be interpreted as teaching away from using another type of information.

3. With further regard to claim 1, and Applicant's assertion that "neither the IBM technical disclosure nor Jindal explicitly shows a UDP delivery route" (Page 8, Lines 28-

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29), it is noted that Martin was cited to teach the use of a UDP delivery route. Applicant is reminded that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

4. In response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Martin discloses that UDP traffic represents an increasing proportion of data traffic, particularly with respect to video transmission. Martin further discloses that considering only TCP connections traffic would not provide a direct relationship to the load on a link and that UDP traffic is directly related to the load on network links (Col 6, Lines 30-41). It would have been apparent to one of ordinary skill in the art that taking UDP traffic into consideration when determining the load on a network link would have been advantageous.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1,4 and 6-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

7. With regard to claim 1, the limitation "wherein said route load measuring units each measures, as the load, an effective bandwidth of the route, the effective bandwidth based on"... "a number of simulated sessions for a server terminal utilizing UDP" is not supported by the specification.

The specification fails to describe using a number of simulated sessions in the calculation of an effective bandwidth. The only reference to such a parameter located by the Examiner appears at page 38, lines 19-21, where the parameter is described as "information concerning the operating state". Neither the number of simulated sessions or the operating state are described as being used in calculating an effective bandwidth.

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8. Claims 1,4 and 6-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. With regard to claim 1, the limitations "TCP/UDP delivery route" in line 5 and "round-trip time" in line 24 combine to render the claim indefinite.

As discussed in the Office action of 1/7/2005, the previous limitation of "TCP/non-TCP delivery" was interpreted as TCP and UDP (Page 3, Lines 1-7). Additionally, the Examiner pointed out that a round-trip time cannot be determined for a UDP route (Page 3, Lines 8-20). Applicant amended the limitation to recite "TCP/UDP" in the response filed 3/31/2005, but did not confirm or refute the Examiner's interpretation of the claim language.

Since Applicant has not refuted the Examiner's interpretation of the claim language, but has again claimed the "round-trip time" parameter as a required parameter, the claim is unclear. Clarification of the relationship between the parameters and the routes is requested, particularly with respect to the inclusion of a round-trip time parameter for a UDP delivery route.

If the term TCP/UDP is intended to mean a TCP or UDP delivery route, Applicant should clearly indicate so. Until such an indication is made, the term will continue to be interpreted as set forth in the Office action of 1/7/2005, as meaning TCP and UDP.

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10. Claims 4 and 6-8 contain similar recitations to claim 1 and are rejected under the same rationale.

11. With regard to claim 1, the limitation wherein said route load measuring units each measures, as the load an effective bandwidth of the route, the effective bandwidth estimated based on a plurality of parameters” (emphasis added) renders the claim indefinite. It is unclear how an effective bandwidth may be measured by being estimated. The specification appears to show that the effective bandwidth is directly calculated using the formula $BW = W \times MSS/RTT$ (Page 26, Lines 7-25 of specification). Such a calculation is not an estimation, so the claim language is unclear regarding the load measuring operation.

12. Claims 4 and 6-8 contain similar recitations to claim 1 and are rejected under the same rationale.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1, 4, and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jindal et al. (US 6,327,622) in view of "Dynamic Computation of TCP Maximum Window Size for Directly Connected Hosts" (hereinafter referred to as the IBM Technical Disclosure), and in further view of Martin (US 6,263,368).

15. In referring to claim 1, Jindal shows a system for load balancing in a network environment having a plurality of clients and servers (see fig. 1). Selection of server is based on status and operational characteristics of each server, which are collected by each server and sent to a central server. Jindal teaches:

A plurality of route loading measuring units (fig. 2, IMO, 210, 212, 214) each provided in each of said server terminals (110, 112, 114) and each measuring a respective load in a route from the unit to one client terminal having a request for service out of said client terminal (col. 8 lines 24-30, 37-41).

A selection unit (central server 100) which selects one server terminal out of said terminals as a destination of the request for service from said one client terminal based on the load measured by said route loading measuring units (IMO) (col. 5 lines 26-30, 36-41), wherein each of said route loading measuring units monitors (IMO) operating states or respective server terminals and when a request for service is received from client terminal, said selecting unit (110) selects one server terminal out of said server terminal as a destination of the request for service from said one client terminal based on the load and the operating states monitored by said load measuring units (col. 6 lines 46-56), wherein the operating states include idle and active states (col. 5 line 6-7).

A storing unit (RMO) which stores the load measured at a pre-specified time interval by each of said route load measuring units, wherein when a request for service is received from said one client terminal, said selection unit selects said one server terminal out of said server terminals as a destination of the request for service from said one client terminal based on the load stored in the storing unit (RMO, col. 7 lines 55-67, and as applicant points out in response dated December 31, 2003, on page 7 lines 4-6, the claimed features of claim 2 are inherent to claim 1 since effective bandwidth is generally measured over a time interval), and

Wherein said route-measuring units (IMO) each measures, as the load, an effective bandwidth of the route (col. 5 lines 4-15).

Although Jindal shows substantial features of the claimed invention, Jindal does not explicitly show the bandwidth measuring parameter for round-trip time, maximum segment size, or at least one of: (a) an adjustable congestion-evading congestion window size for a terminal utilizing TCP, or (b) a number of simulated sessions for a server terminal utilizing UDP. Nonetheless these features are well known in the art, and would have been an obvious modification to the system disclosed by Jindal, as evidenced by IBM technical disclosure.

In an analogous art, the IBM technical disclosure shows dynamic computation of various network parameters which aid to improve the performance of connections in a network. The IBM technical disclosure shows parameters including round trip time (ANALYSIS section, first two bullets), maximum segment size (COMPUTING WINDOW

section, last bullet), and an adjustable congestion-evading congestion window size for a terminal utilizing TCP (Disclosure text, first bullet).

Given these features, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system shown by Jindal to employ the features shown by the IBM technical disclosure in order to make accurate traffic measurement.

Although the above cited references show substantial features of the claimed invention, they do not explicitly show a UDP delivery route. Nonetheless this feature is well known, if not inherent in the art, and would have been an obvious modification to the system disclosed by Jindal and IBM as evidenced by Martin. In an analogous art, Martin shows a network load balancing system for a multi-computer server by counting message packet. Martin shows the measuring of respective load including TCP and UDP traffic flows (col. 6 lines 30-65, col. 10 lines 37-63).

Given this feature, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system shown by Jindal and IBM to employ the feature shown by Martin in order to account for total effective Internet traffic on a network link.

16. In referring to claims 4 and 6, in addition to the rejection of claim 1 above, Jindal discloses a selecting unit (100) selecting a route measuring unit (IRMO, 406a, 416a) as a primary destination of the request based on load measured and operating status (fig. 3, col. 48 line 48- col. 10 line 12), and a system for load balancing among replicated

services having server terminals divided into sever groups each having at least two of the server terminals (see Fig. 3, server farms) and selecting one server terminal out of the server terminals based on operating status in the group as a secondary destination of the request for service from said one client terminal (see Fig. 4; Note that in Fig. 4 each "IRMO" points to multiple servers, therefore it is clear that one server terminal (secondary destination) will be selected based upon the results of an operating status and/or load characteristics).

17. In referring to claim 7 and 8 Jindal shows:

A plurality of path load measuring and operating state monitoring devices (IMO) in each server, arranged to measure effective bandwidths of path loads from a client terminal requesting service to server terminals, wherein effective bandwidth is based monitoring states of several terminals, idle and active states (col. 5 lines 4-15).

A DNS-responding device to compare effective bandwidth of measurements of path loads from the plurality of path load measuring and operating state monitoring devices to the client terminal and to select a server terminal having a larges effective bandwidth and an active operating state to provide service to the client terminal (col. 5 lines 16-24).

Although Jindal shows substantial features of the claimed invention, Jindal does not explicitly show the bandwidth measuring parameter for round-trip time, maximum segment size or adjustable congestion-evading congestion window size for a terminal utilizing TCP, or a number of simulated sessions for a server terminal utilizing UDP.

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Nonetheless these features are well known in the art, and would have been an obvious modification to the system disclosed by Jindal, as evidenced by IBM technical disclosure.

In an analogous art, the IBM technical disclosure shows dynamic computation of various network parameters which aid to improve the performance of connections in a network. The IBM technical disclosure shows parameters including round trip time (ANALYSIS section, first two bullets), maximum segment size (COMPUTING WINDOW section, last bullet), and an adjustable congestion-evading congestion window size (Disclosure text, first bullet).

Given these features, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system shown by Jindal to employ the features shown by the IBM technical disclosure in order to make accurate traffic measurement.

Although the above cited references show substantial features of the claimed invention, they do not explicitly show a UDP deliver route. Nonetheless this feature is well known, if not inherent in the art, and would have been an obvious modification to the system disclosed by Jindal and IBM as evidenced by Martin. In an analogous art, Martin shows a network load balancing system for a multi-computer server by counting message packet. Martin shows the measuring of respective load including TCP and UDP traffic flows (col. 6 lines 30-65, col. 10 lines 37-63).

Given this feature, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system shown by Jindal

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and IBM to employ the feature shown by Martin in order to account for total effective Internet traffic on a network link.

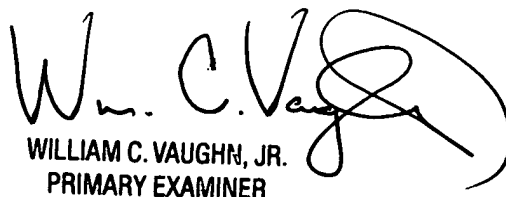
Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Strange whose telephone number is 571-272-3959. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS
3/23/2006


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PRIMARY EXAMINER